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RESEARCH ARTICLE

DEATHS DUE TO HANGING

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ABSTRACT

Background: Death due to hanging is commonly encountered in medico legal procedure and is one of the common mode of suicide after poisoning. **Aim:** To study on various factors associated with suicide by hanging at Bijapur, India. **Materials and Methods:** The retrospective study was conducted in Department of Forensic Medicine Al- Ameen Medical College, Bijapur, Karnataka 2014-2018. **Results:** most common age group involved in Hanging is 31-40 years (38%) followed by 21-30 years (19%), then 51-60 years (16%). 72% of cases were married and living with their families while 21% were unmarried and 3% were widowed. Financial problems is the most common cause which is about 70% followed by 10% cases of family dispute, then failure in exams (1%), then mental illness (1%) and personal affairs (4%). 82% cases were involved in complete hanging and 18% cases were present in partial hanging. 18% of cases showed dribbling of saliva which is an obvious sign of antemortem hanging. Nylon rope was the most common type of ligature material used for hanging accounting for about 68% followed by cotton rope (6%), Metal wire (6%), saree (6%), dhot i(5%), lungi (1%). In most of the cases, ligature mark was found above the thyroid cartilage (92%), below the thyroid cartilage (6%) and at the level of thyroid cartilage (2%). **Conclusion:** Death due to hanging is commonly encountered mostly in younger age group, financial problem, followed by family disputes were commonly observed reasons. Nylon rope is most commonly used ligature material followed by cotton rop. In most of the cases of death due to hanging ligature mark was found above the level of thyroid cartilage.

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INTRODUCTION

Hanging is one of the 10 leading causes of death in the world accounting for more than a million deaths annually (Mohanty, 2007). In India, hanging is second common method of committing suicide after poisoning. Over the past 30 years the incidence of suicide by hanging is on increase, especially among young adults (David Gunnell, 2005). Hanging is the form of violent mechanical asphyxia death. It is caused by constriction of neck by suspending the body and force of constriction is either the weight of the body or weight of the head (Avinash, 2018). Since ages people in distress with mounting pressures of life, break down to end their life and invariably it is seen that the easier route which is readily available to them is death by hanging (Ashok Kumar Samanta, 2012). It is one of the most important cause for unnatural deaths commonly encountered in the professional life of forensic expert during day to day autopsy (Mohammed Musaib, 2013). Here we are presenting our experiences regarding death due to hanging.

MATERIALS AND METHODS

This retrospective study was conducted in department of forensic medicine, Al Ameen medical college Bijapur, Karnataka from 2014 to 2018. The study included 100 cases of death due to hanging. All autopsies have been done in department of forensic medicine of Al Ameen medical college Bijapur. Information regarding age, sex, residence, marital status, date of death, reasons of suicide and all other relevant information about the case had been collected from the accompanying police papers and detail history from the relatives of victim.

The findings were recorded and analysis was done to find out age and sex distribution, type of hanging, level of ligature mark, type of ligature material used and reasons of suicide, etc. The data was studied statistically using percentage and ratio analysis and finally inferences were made. This study was carried out by taking permission from the institutional ethical committee.

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RESULTS

Table 1 shows distribution of hanging cases according to age and sex. From table 1 it is observed that, incidence of hanging was more in males than females. Out of 100 cases 78 were males while 22 were females with Male to female ratio 3.5:1 Table 4 shows distribution of hanging cases according to presence or absence of salivary stains. From this it is observed that oozing of saliva from angle of mouth (salivary stain) which is a sign of antemortem hanging is present in 18% cases and absent in 82% cases. Table 5 shows distribution of cases according to material used. From this nylon rope was used in hanging in 68% cases, followed by cotton rope(6%), then metal wire(6%), sari(6%), dhoti(5%), lungi(1%) and dupatta(8%). Table 6 shows at the time of committing suicide 72% of cases were married and living with their families while 21% were unmarried, 3% were widowed, 2% were separated and 2% were divorced.

Table 1. Distribution of Age and sex

Age	Number	Male	Female
10-20	5	1	4
21-30	19	13	6
31-40	38	30	8
41-50	20	16	4
51-60	16	16	0
61-70	2	2	0
Total	100	78	22

Table 2. Distribution of cases of hanging according to reasons for committing suicide

Reasons	Percentage
Financial problems	70%
Family disputes	10%
Failure in exam	1%
Mental illness	1%
Dowry harassment	4%
Personal affairs	4%
Motive not known	10%
Total	100%

Table 3. Type of hanging

Type of hanging	Percentage
Complete and typical	3%
Complete and atypical	61%
partial and typical	5%
Partial and atypical	31%
Total	100%

Table 4. Salivary stains

Salivary stains	Number	Percentage
Present	18	18%
Absent	82	82%
Total	100	100%

Table 5. Distribution of cases according to type of ligature material used

Ligature material	Percentage
Nylon rope	68%
Cotton rope	6%
Saree	6%
Dhoti	5%
Lungi	1%
Dupatta	8%
Metal wire	6%
Total	100%

Table 6. Marital status

Marital status	Percentage
Married	72%
Single	21%
Widowed	3%
Separated	2%
Divorced	2%
Total	100%

Table 7. Distribution of cases with regard to level of ligature mark

Level of ligature mark with regard to thyroid cartilage	Number	Percentage
Below the level	6	6%
At the level	2	2%
Above the level	92	92%
Total	100	100%

DISCUSSION

In our study 31-40 years were most commonly involved accounts for 38% followed by 21-30 (19%), then 51-60(16%), then 10-20(5%) and 61-70(2%). Study conducted by Avinash wagmore et al 85% of victims were males and 15% were females which is inconsistent with Wagmore et al. (2018) The age group 31-40 was commonly involved according to Wagmore et al and azmak D et al. (2006). In our study, financial problem i.e., economic crisis is most common cause which is about 70% followed by 10% cases of family disputes, then failure in exams 1%, mental illness 1%, dowry harassment 4%, personal affairs 4% and 10% cases with unknown reasons. Study conducted by Wagmore et al. (2018) shows most common reason for suicide by hanging was financial problems (economic crisis) which were found in 75% cases as in our region farmer population and financial problem is the most common reason for suicide. High suicide rate among young adults, especially females impose a huge social, emotional and economic burden on our society. Both in developed and developing countries suicides among young seem to be on increase (Bennewith Olive, 2005; Ahmad, 2010; Eddlesto, 1998; Wassermann, 2015). Stresses associated with marriage, dependency, dowry related problems, interpersonal differences with spouse and his relatives were the major factors in Indian women (Lalwani, 2004). In our study, it is observed that incidence of complete hanging was observed in 82% cases and partial hanging was present in 18% cases.

These findings are in agreement with the study done by Sheikh M.M.M et al. (2015). The fact that most of male in this study adopted complete hanging and majority of females adopted incomplete hanging was explained due to case of higher reach for tying knot to the coiling by males and utilizing rope based ligature material. In our study dribbling of saliva was found in 18% cases while Ashok kumarsamrata et al. (2012) who observed 32.31% cases with dribbling of saliva. Sarangi M.P (1998) found dribbling of saliva in only 11% cases of hanging and did not find in any cases of ligature strangulation. Dribbling of saliva is sure sign of hanging having taken place during life. In our study nylon rope was used in hanging in 68% cases, followed by cotton rope(6%), then metal wire(6%), sari(6%), dhoti(5%), lungi(1%) and dupatta (8%). According to Vijay kumari N et al most commonly used ligature was nylon material (saree, dupatta and rope) and ligature points were sealing fans, beams and window grills.

In other study conducted by B.R.sharma et al (13) dupatta was commonly used material by females and sarees was used by males (Ahmad, 2010; Sharma, 2008). Easy availability of this materials widely restriction very difficult. In our study, it shows that at the time of committing suicide 72% of cases were married and living with their families while 21% were unmarried, 3% were widowed, 2% were seperated and 2% were divorced. According to vijaykumari et al at the time of committing suicide majority of cases were living with family and the place of hanging was at home. It was observed that 69% of them were married and living together, 6% were either divorced or seperated. In my study ligature mark was found above the thyroid cartilage in 92% cases, below thyroid cartilage in 6% cases and at level of thyroid cartilage in 2% cases. Regarding the level of ligature mark, study conducted by Avinash wagmore observed that in 87.5% cases ligature mark is present above level of thyroid cartilage (Avinash, 2018). Similar findings were observed by Sarangi.M.P and Nikolic.S et al.

Summary and Conclusion

In above study, we concluded that hanging death are most common in 31-40 years of age group followed by 21-30 years age group. Most of the hanging deaths were married and living their families followed by unmarried, widowed, separated and were divorced. Financial burden is the most common cause of hanging deaths followed by family disputes, failure in exams, mental illness, dowry harassment, personal affairs. High suicide rate among young adults, especially females impose a huge social, emotional and economic burden on our society. Complete hanging accounts for most common type of hanging deaths followed by partial hanging. Dribbling of saliva which is a sure sign of hanging is seen in less number of cases. Nylon rope was the most common type of ligature material used followed by cotton rope, metal wire, saree, dhoti, lungi, dupatta. In most of the cases of hanging deaths ligature mark was found above the level of thyroid cartilage, followed by below the level of thyroid cartilage and in few cases at the level of thyroid cartilage.

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